

## ABSTRACT OF THE DISCLOSURE

Apparatus and method for separation of milk and milk products, e.g., involving sequential separation of milk, clostrum, and whey components by cross-flow filtration. The apparatus and method in a preferred aspect employ cross-flow filtration, chromatography and fermentation to separate and fully utilize the components of milk, clostrum, and whey to generate numerous individual components, minimize waste, lower adverse environmental issues and provide enhanced economic benefits to dairy producers. A wide variety of consumer and nutraceutical products can be produced from the fractions and/or sub-fractions of milk products obtained from such separation. The invention further contemplates a methodology for selecting optimum membrane, device, and operating conditions to achieve a desired separation.